PROBABILIDAD

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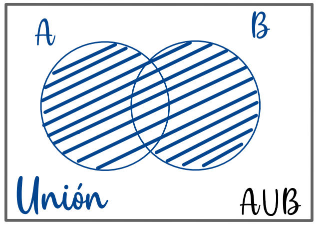
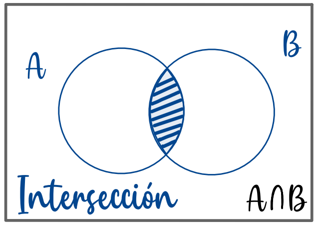
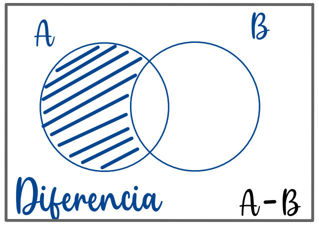
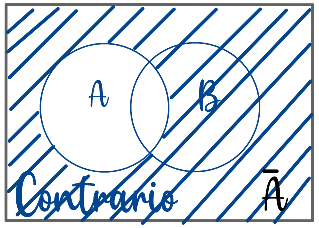
Regla de Laplace

$$P(A) = \frac{\text{Nº casos favorables}}{\text{Nº casos posibles}}$$









Leyes de Morgan

$\overline{A \cup B} = \bar{A} \cap \bar{B}$

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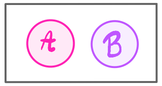
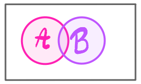
Sucesos incompatibles



$P(A \cap B) = 0$

$P(A \cup B) = P(A) + P(B)$

Sucesos compatibles



$P(A \cup B) = P(A) + P(B) - P(A \cap B)$

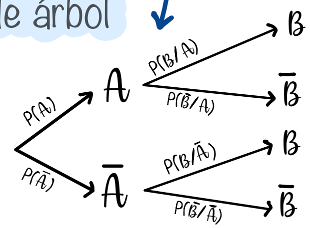
Sucesos independientes

$P(A \cap B) = P(A) \cdot P(B)$

Propiedades

1. $0 < P(A) < 1$
2. $P(E) = 1$, E= suceso seguro
3. $P(\emptyset) = 0$
4. $P(\bar{A}) = 1 - P(A)$
5. $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
6. $P(A-B) = P(A) - P(A \cap B) = P(A \cap \bar{B})$

Diagrama de árbol



Probabilidad total

$P(B) = P(A1) \cdot P(B/A1) + P(A2) \cdot P(B/A2) + P(A3) \cdot P(B/A3) + \ldots + P(An) \cdot P(B/An)$

Teorema de Bayes

$$P(A1/B) = \frac{P(A1) \cdot P(B/A1)}{P(A1) \cdot P(B/A1) + P(A2) \cdot P(B/A2) + P(A3) \cdot P(B/A3) + \ldots + P(An) \cdot P(B/An)}$$

Probabilidad condicionada

$$P(B/A) = \frac{P(A \cap B)}{P(A)}$$

Probabilidad de B sabiendo que ha ocurrido A

Probabilidad intersección

Sucesos dependientes $P(B \cap A) = P(A) \cdot P(B/A)$

Sucesos independientes $P(B \cap A) = P(A) \cdot P(B)$

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